



UNITED STATES PATENT AND TRADEMARK OFFICE

M-5

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,605	02/05/2004	Hans-Ueli Roeck	36431	5066

116 7590 08/10/2006

PEARNE & GORDON LLP
1801 EAST 9TH STREET
SUITE 1200
CLEVELAND, OH 44114-3108

EXAMINER

SWERDLOW, DANIEL

ART UNIT	PAPER NUMBER
----------	--------------

2615

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,605

Applicant(s)

ROECK, HANS-UELI

Examiner

Daniel Swerdlow

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9/1-15,19/11 and 20 is/are rejected.
- 7) ☒ Claim(s) 7-9/7 and 16-19/16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 12 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding Claims 5 and 12, the adverb "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following it are part of the claimed invention. See MPEP § 2173.05(d).

4. Claim 20 provides for the manufacture of a hearing device, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex*

parte Dunki, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 through 4, 11, 14, 15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Phonak (WO 02/05591 A2).

8. WO 02/05591 A2 is prior art under 35 U.S.C. 102(b) with respect to the present application due to its publication date of 17 January 2002. For convenience, US 2003/0091197 A1 is relied upon as an English translation and citations below are made with respect to the US publication.

9. Regarding Claim 1, Phonak discloses a hearing device (Fig. 1) comprising a microphone M1 that corresponds to the input device claimed, a signal processing unit 1 and an output signal u that is fed to the hearer of the hearing device, inherently including an output transducer (§ 0016, lines 5-7) in which: microphone M1 records acoustics signals and feeds an output to the signal processing unit (i.e., converts an acoustic input signal into a converted input signal) (§ 0014, lines 2-3; § 0015, lines 2-3); feeding the microphone signal to the signal processing unit 1 that outputs signal parts (i.e., processing the converted input signal in a main signal path in order to obtain a main output signal) (§ 0015, lines 3-5; § 0016, lines 1-3); feeding the signal parts to

Art Unit: 2615

the hearer of the hearing device (i.e., supplying the main output signal to an output transducer) (§ 0016, lines 5-7); multiplying (i.e., processing) the output of microphone M1 (i.e., the converted input signal) in a multiplier 5 that corresponds to the side signal path claimed to a weighted signal that corresponds to the side path output signal claimed (§ 0022, lines 5-9); adding (i.e., superimposing) the weighted signal that corresponds to the side path output signal claimed and the signal processing unit output that corresponds to the main output signal claimed (§ 0022, lines 8-9), wherein the path through the signal processing unit that corresponds to the main signal path claimed includes a beamforming algorithm (§ 0015- 0016) while the path that corresponds to the side path claimed includes only a simple scaling (§ 0022, lines 5-9). As such, the path that corresponds to the side path claimed inherently has a smaller group delay than the path through the signal processing unit that corresponds to the main signal path claimed.

10. Regarding Claim 2, Phonak further discloses multiplying the output of microphone M1 by a factor of 1 to provide an omnidirectional signal (Fig. 1; § 0019).

11. Regarding Claim 3, Phonak further discloses the gain in the signal that corresponds to the side path output signal claimed and the signal processing unit output that corresponds to the main output signal claimed being always complementary (Fig. 1; § 0022). As such, the gain in the signal that corresponds to the side path output signal claimed is a function of the gain in the signal processing unit output that corresponds to the main output signal claimed.

12. Regarding Claim 4, Phonak further discloses the gain in the signal that corresponds to the side path output signal claimed and the signal processing unit output that corresponds to the main output signal claimed being always complementary (Fig. 1; § 0022). As such, the gain in the

Art Unit: 2615

signal that corresponds to the side path output signal claimed is a function all existing band gains in the signal processing unit output that corresponds to the main output signal claimed.

13. Regarding Claim 11, Phonak discloses a hearing device (Fig. 1) comprising: a microphone M1 that corresponds to the input transducer claimed and records acoustics signals and feeds an output to the signal processing unit (i.e., converts an acoustic input signal into a converted input signal) (§ 0014, lines 2-3; § 0015, lines 2-3); a signal processing unit 1; an output signal u that is fed to the hearer of the hearing device, inherently including an output transducer (§ 0016, lines 5-7); wherein the microphone signal is fed to the signal processing unit 1 that outputs signal parts fed to the hearer of the hearing device (i.e., the input transducer is operatively connected to the output transducer via the signal processing unit) (§ 0015, lines 3-5; § 0016, lines 1-3, 5-7); and wherein a signal path including a multiplier 5 that corresponds to the side signal path claimed is provided and fed by the output of microphone M1 (i.e., the converted input signal) and has an output operative connected to a summator unit 6 that corresponds to the adder claimed (§ 0022, lines 5-9) which is comprised in the path between the signal processor 1 and the output signal u, the signal path corresponding to the side signal path claimed comprising a multiplier 5 that corresponds to the gain unit claimed.

14. Regarding Claim 14, Phonak further discloses the multiplier 5 that corresponds to the gain unit claimed having an input that is the complement of an input applied to a multiplier 3 that controls the output of the signal processing unit. As such, there is an operative connection between the multiplier 5 that corresponds to the gain unit claimed and the signal processing unit.

15. Regarding Claim 15, Phonak further discloses the gain in the signal that corresponds to the side path output signal claimed and the signal processing unit output that corresponds to the main output signal claimed being always complementary (Fig. 1; ¶ 0022). As such, the gain set in the multiplier 5 that corresponds to the gain unit claimed is a function of the gain in the signal processing unit output that corresponds to the main signal path claimed.

16. Regarding Claim 20, while the claim is indefinite and non-statutory as shown above under *Claim Rejections - 35 USC § 112* and *Claim Rejections - 35 USC § 101*, respectively, the elements listed are all disclosed in Phonak as shown above apropos of Claim 1.

17. Claims 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Steeger (US Patent 4,508,940).

18. Regarding Claim 11, Steeger discloses a hearing aid (Fig.; column 4, line 55- column 5, line 28) comprising: a main signal path including a microphone 1 that corresponds to the input transducer claimed, a filter and amplifier and limiter arrangement (4a, 5a, 7a, 9a, 10a) that corresponds to the signal processing unit claimed, and an earphone 13 that corresponds to the output transducer claimed; wherein the microphone 1 that corresponds to the input transducer claimed is operatively connected to the earphone 13 that corresponds to the output transducer claimed via the filter and amplifier and limiter arrangement (4a, 5a, 7a, 9a, 10a) that corresponds to the signal processing unit claimed; and wherein a filter and amplifier and limiter arrangement (4n, 5n, 7n, 9n, 10n) that corresponds to the side signal path claimed is provided that is fed on its input side by the microphone output 3 that corresponds to the converted input signal claimed and is connected on its output side to an addition point 11 which is comprised in the main signal path

Art Unit: 2615

between the filter and amplifier and limiter arrangement (4a, 5a, 7a, 9a, 10a) that corresponds to the signal processing unit claimed and the earphone 13 that corresponds to the output transducer claimed, with the filter and amplifier and limiter arrangement (4n, 5n, 7n, 9n, 10n) that corresponds to the side signal path claimed comprising amplifiers (5n, 7n) that correspond to the gain unit claimed.

19. Regarding Claim 12, Steeger further discloses the filter and amplifier and limiter arrangement (4n, 5n, 7n, 9n, 10n) that corresponds to the side signal path claimed comprises filters (4n, 10n) that correspond to the filter unit claimed and include a high pass filter 10n and a time domain filter bank (Fig. reference 4n; column 4, lines 58-62).

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phonak in view of Levitt et al. (US Patent 4,879,749).

22. Regarding Claims 6 and 13, as shown above of Claims 1 and 11, respectively, Phonak anticipates all elements except limiting the main output signal before the output transducer. Levitt discloses a hearing aid (Fig. 2) with a limiter 67 before the output transducer 69. Levitt further discloses that such an arrangement prevents user discomfort (column 7, lines 26-28). It would have been obvious to one skilled in the art at the time of the invention to apply output

Art Unit: 2615

limiting as taught by Levitt to the hearing aid taught by Phonak for the purpose of realizing the aforesaid advantage.

23. Claims 9/1, 10 and 19/11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phonak in view of Killion et al. (US Patent 5,524,056).

24. Regarding Claims 9 and 19, as shown above of Claims 1 and 11, respectively, Phonak anticipates all elements except switching off processing in the main signal path when the input signal is below a preset value. Killion discloses a hearing aid (Figs. 1,8) that selects a signal path based on input level (column 6, lines 22-31) depending on whether the input level is above or below a preset value (column 7, lines 46-67). Killion further discloses that such an arrangement provides appropriate processing for a particular situation (column 3, lines 21-27). It would have been obvious to one skilled in the art at the time of the invention to apply signal path selection as taught by Killion to the hearing aid taught by Phonak for the purpose of realizing the aforesaid advantage.

25. Regarding Claim 10, Claim 9 comprehends all elements of Claim 10, as such, Claim 10 is rejected for the reasons stated above apropos of Claim 9.

Allowable Subject Matter

26. Claim 5 would be objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims if the indefiniteness detailed above under *Claim Rejections - 35 USC § 112* was resolved.

Art Unit: 2615

27. Regarding Claim 5, as shown above apropos of Claim 1, Phonak anticipates all elements except filtering the signal in the side signal path. As shown above apropos of Claim 12, Steeger discloses filtering in side signal paths. However Steeger fails to disclose the side signal paths having a smaller group delay than the main signal path. Because the absence of filtering in the side path in Phonak makes inherent the smaller group delay required in Claim 1, the teachings of Phonak and Steeger cannot be combined to form the claimed invention. As such, Claim 5 is allowable matter.

28. Claims 7 through 9/7 and 16 through 19/16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

29. Regarding Claim 7, as shown above apropos of Claim 1, Phonak anticipates all elements except processing the signal in at least an additional side signal path and superimposing the additional side signal path output on the main signal path output. As shown above apropos of Claim 12, Steeger discloses filtering in a plurality of side signal paths and superimposing their outputs on a main signal path output. However Steeger includes the side signal in order to produce a desired frequency characteristic by filtering in the paths. Because the absence of filtering in the side path in Phonak makes inherent the smaller group delay, the teachings of Phonak and Steeger cannot be combined to form the claimed invention. As such, Claim 7 is allowable matter.

30. Claims 8 and 9/1 are allowable matter due dependence from Claim 7.

31. Regarding Claim 16, in addition to the elements shown above apropos of Claim 11, Steeger further discloses further filter and amplifier and limiter arrangements (4b-c, 5b-c, 7b-c,

Art Unit: 2615

9b-c, 10b-c) that correspond to the further side signal paths claimed each comprising amplifiers (5b-c, 7b-c) that correspond to the further gain unit claimed. However, Steeger does not disclose a delay unit in a side signal path. Further, there is no teaching or motivation in the prior art or in the knowledge of one of ordinary skill in the art to modify the hearing aid in Steeger to include such a delay unit. As such, Claim 16 is allowable matter.


32. Claims 17 through 19/16 are allowable matter due to dependence from Claim 16.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Daniel Swerdlow
Primary Examiner
Art Unit 2615